

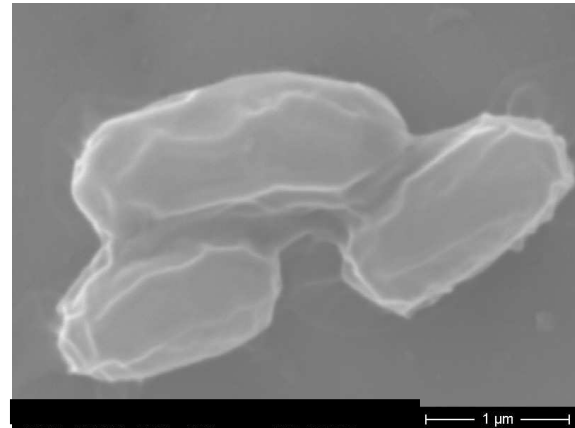
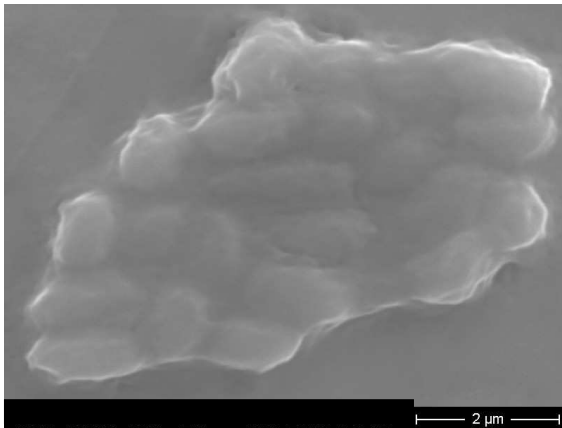
***Bacillus cereus*, 14579 Inherent Spore Clumping**
November 29, 2006

Bacillus cereus 14579 is the closest known genetic relative to *Bacillus anthracis*. Because of the obvious concerns with *B. anthracis*, *B. cereus* is routinely used as a surrogate microorganism for experimental testing.

B. cereus and *B. anthracis* spores possess an exosporium, which is a slimy, membrane-like structure surrounding the spore. This exosporium contributes to the formation of aggregates or clumps. This characteristic makes *B. cereus* a good surrogate for *B. anthracis* and therefore, removal of the exosporium could potentially compromise its value as a surrogate.

The user of *B. cereus* spore suspensions must be aware that the preparations are susceptible to clumping (see Scanning Electron Micrographs (SEM) below). The presence of such aggregates makes confirmation of spore concentration highly problematic. SGM can temporarily disassociate these aggregates during manufacturing to determine accurate spore concentrations. However, due to the inherent physical nature of this microorganism, the aggregates reform.

For this reason, SGM will not accept return of any *B.cereus* suspension due to apparent inability to confirm the spore concentration on the label.



SEM of *B. cereus* spores showing visible exosporium surrounding the individual spores. Aggregates of approximately 25 spores (left) and three spores (right) would both render one CFU on an agar plate giving an inaccurate representation of total spore population.